Case Presentation

Being good at patient assessment is a lot like being a good detective.
Case Presentation

- This is a real case....
  - June 15\textsuperscript{th}, 2009
  - Appleton, WI
  - “...something is wrong with my son; I don’t know if he’s on something or what, but he’s acting very strange”
  - Click Here
Case Presentation

- What is your assessment of this patient?
  - He may be diabetic and acutely hypoglycemic
  - He has Wernicke’s encephalopathy
  - He is intoxicated (drugs, EtOH, etc.)
  - He is experiencing excited delirium
  - He is experiencing Jagermeister dementia
  - We need to upload this video to Tosh.0 immediately!
Case Presentation

- Is this a case of dementia, or delirium or other?
Delirium vs. Dementia

• What’s the difference?
  • Dementia
    • *Chronic process*
      • Months to Years
    • Produces severe deficits in memory, abstract thinking, and judgment
      • Memory, attention, language and problem solving affected
    • Typically able to focus attention
  • Delirium
    • Comes on quite rapidly
      • Hours to Days
    • Global impairment of cognitive function
      • Changes in arousal (hyperactive, hypoactive, or mixed)
      • Perceptual deficits
      • Altered sleep-wake cycle
      • Psychotic features such as hallucinations
    • *May fluctuate in severity*
    • Related to an underlying disease or problem with mentation
A look at the factors that can cause delirium

Delirium among hospitalized patients can be caused by any one of the following:

- Alcohol
- Electrolytes
- Endocrine abnormalities
- Hepatic abnormalities
- Infection
- Inflammation
- Opiates
- Oxygen deprivation

- Porphyria (AIP)
- Psychiatric disorder
- Seizure
- Sepsis
- Stroke
- Temperature
- Trauma
- Uremia
Delirium vs. Dementia

- Either way, the patient is confused, combative and difficult to control/contain
  - Who cares??
    - Dementia is a chronic, progressive process
      - Typically no treatment is effective
    - Delirium usually has a treatable cause
      - We must identify the precipitating factor, and address it
Case Presentation

• This gentleman is experiencing a condition known as *excited delirium*

• I also would have accepted the Tosh.0 answer...
The Agitated Patient
The Agitated Patient

• First referred to as “Bell’s Mania”
  • Luther Bell, 1849
  • “disease” resembling advanced stages of mania with fever
  • “exhaustive mania” described in 40 cases by Dr. Bell
    • “exhaustion due to mental excitement” caused three quarters of these patients to die.

• Bizarre behaviors and deaths in the setting of uncontrolled psychiatric illness decreased dramatically in the 1950’s
  • Why??
    • Largely attributed to the advent of modern antipsychotic drugs
The Agitated Patient

- Psychiatric care changed from custodial patient control to de-institutionalization and return to the community
The Agitated Patient

• And then came the 80’s....

• **Dramatic increase in the amount of NEON text**

• **Also noted an increase in the number of reported cases similar to ExDS**

• Some related to unchecked psychiatric disease

• Many were attributed to the introduction and abuse of cocaine
Excited Delirium

• Explicitly described in 1985
  • Observed in individuals attempting to smuggle packets of cocaine in their bodies that broke
    • Acute, intense paranoia
    • Violence
    • Surprising physical strength
    • Hyperthermia
    • Fatal respiratory collapse within minutes or hours of restraint
  • Condition related to acute cocaine intoxication
Excited Delirium

• The typical story of a patient with excited delirium
  • Acute drug intoxication
  • History of mental illness (especially those conditions involving paranoia)
  • Struggle with law enforcement,
  • Physical or noxious chemical control measures or electrical control device (ECD) application
  • Period of quiet after taken into custody
  • Sudden and unexpected death
  • Autopsy which fails to reveal a definite cause of death from trauma or natural disease
Excited Delirium

• Epidemiology
  • Exact incidence is impossible to determine
    • No standard case definition to identify
  • Etiology
    • Drug use, alcohol withdrawal, low blood sugar, mental illness or extreme fatigue.
  • Diagnosis of exclusion on autopsy
    • Little documentation so far about survivors
  • There is one published case series on Excited Delirium that reports the incidence of death is 8.3%
    • Likely causes: respiratory compromise or electrolyte disturbance
  • Stimulant drug use, including cocaine, methamphetamine, and PCP
    • Well established association with Excited Delirium
    • Usually associated with cases of Excited Delirium death
Excited Delirium

Diagnostic Features / Common Characteristics

- 95% of published fatal cases are male
  - Mean age of 36
- Hyperaggressive
- Bizarre behavior
- Impervious to pain
- Combative
- Hyperthermic
- Tachycardic
- Struggle with law enforcement
  - Quiet period followed by sudden death
Excited Delirium

- Pathophysiology
  - The fundamental manifestation is delirium
    - Underlying causes are thought to be complex, and poorly understood
  - Several underlying causes
    - Psychiatric disease
    - Stimulant drug use
    - Psychiatric drug withdrawal
    - Metabolic disorders
  - Unknown why some cases progress to death and others do not
  - Brain evaluation at autopsy shows characteristic loss of dopamine transporters in the striatum
    - ?? Potential cause of excited delirium is excessive dopamine stimulation in the striatum
    - Hypothalamic dopamine receptors are responsible for thermoregulation
Excited Delirium

• Differential Diagnosis
  • Just about any drug, toxin, psychiatric or medical condition, or physiologic alteration can cause changes in behavior and mental status
  • Even professionals who study this may not be able to differentiate Excited Delirium from other conditions acutely!
    • Extensive testing and protracted observation are often required to unravel the causes of altered sensorium

• Common things that cause AMS?
  • AEIOU TIPS
  • SMASHED
Excited Delirium

• **AEIOU TIPS**
  - Alcohol
  - Endocrine, Encephalopathy, Electrolytes
  - Insulin (hypoglycemia)
  - Oxygen (hypoxia), Opiates (drugs of abuse)
  - Uremia
  - Toxins, Trauma, Temperature
  - Infection
  - Psychiatric, Porphyria
  - Stroke, Shock, Subarachnoid Hemorrhage, Space-Occupying CNS Lesion
Excited Delirium

- **SMASHED**
  - **Substrates**
    - glucose (high/low), thiamine deficiency
  - **Sepsis**
  - **Meningitis**
    - all CNS infections, AIDS dementia, encephalitis, brain abscess or toxoplasmosis
  - **Mental illness**
    - acute psychosis, medication noncompliance, mania, depression, malingering, rage, suicide intent (via police)
  - **Alcohol**
    - Intoxication, withdrawal
  - **Accident**
    - head trauma, CVA, cerebral contusion, subdural or epidural hematoma
  - **Seizing**
    - or postictal
  - **Stimulants**
    - hallucinogens, anticholinergics, Cocaine, amphetamines, caffeine, PCP, LSD, ketamine, psilocybin, antihistamines, atropine, scopolamine, jimson weed
  - **Hyper**
    - hypertension, hyperthyroidism, hypercarbia, hyperthermia
  - **Hypo**
    - hypotension, hypothyroidism, hypoxia, hypothermia
  - **Electrolytes**
    - hyper/hyponatremia, hypercalcemia
  - **Encephalopathy**
    - hepatic, HIV, uremic, hypertensive, lead, Reye's syndrome, CNS tumor
  - **Drugs**
    - Intoxication or withdrawal
  - *Don't forget other drugs*
Excited Delirium

- Considerations
  - Diabetic hypoglycemia
  - Heat Stroke
  - Serotonin Syndrome, NMS
    - Usually not aggressive and violent
  - Psychiatric Disorders

- *Treatment Priorities*
  - Hypoglycemia
    - Correct with dextrose
  - Rhabdomyolysis
    - IVF, IVF, IVF
  - Hyperkalemia
    - Cardiac monitor and IVF
  - Metabolic Acidosis
    - IVF
  - Hypovolemia
    - IVF
Excited Delirium

• Treatment
  • Without a definite definition, it is impossible to start any kind of clinical trial
  • All treatments are based on consensus, and focus on correcting the known underlying disorders
  • **First line treatment should be aggressive chemical sedation**
    • Physical struggle is a much greater contributor to catecholamine surge and metabolic acidosis than other causes of exertion or noxious stimuli
  • **VS, cardiac monitoring, IV access, FSBS, pulse ox and supplemental oxygen**
  • **Careful physical examination**
Excited Delirium

- Controversy
  - Civil Rights Groups
    - Excited delirium diagnoses are being used to absolve law enforcement of guilt in cases where alleged excessive force may have contributed to patient deaths
    - 2003 NAACP
      - ExDS is used to explain the deaths of minorities more often that whites
    - 2007 ACLU
      - ExDS not recognized by the AMA or American Psychological Association
      - “…a means of white-washing what may be excessive use of force and inappropriate use of control techniques by officers during an arrest”
      - Does not appear in the DSM-IV
    - Condition is recognized by the National Association of Medical Examiners
    - ACEP issued a white paper in 2009
Excited Delirium

- American College of Emergency Physicians
  - Set a task force to evaluate whether Excited Delirium was a real thing (or not)
  - White Paper, September 10, 2009
    - “It is the consensus of the Task Force that ExDS (Excited Delirium Syndrome) is a unique syndrome which may be identified by the presence of a distinctive group of clinical and behavioral characteristics that can be recognized in the pre-mortem state.
    - “ExDS, while potentially fatal, may be amenable to early therapeutic intervention in some cases.”
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General Assessment

• Scene Size-up
  • Be alert to the potential for violence.
  • Look for signs of hazardous material involvement.
    • Enter a hazardous materials scene only if properly trained and equipped to do so.

• Initial Assessment
  • Airway and respiratory compromise are common in toxicologic emergencies.
  • Manage life-threatening conditions.
General Assessment

- History, Physical Exam, and Ongoing Assessment
  - Identify if there was a toxin and length of exposure
    - Contact poison control and medical direction according to local policy
  - Complete appropriate physical exams
  - Monitor vital signs closely
General Treatment

• Initiate supportive treatment
• Decontamination
  • Reduce intake of the toxin
    • Remove the individual from the toxic environment
  • Reduce absorption of toxins in the body
    • Use activated charcoal
    • Rarely gastric lavage
  • Enhance elimination of the toxin
    • Use cathartics
Violent Patients and Restraint

- Methods of restraint
  - Guidelines
    - Use the minimum force needed
    - Use appropriate devices to perform restraint
    - Restraint is not punitive
    - Patients who have been restrained require careful monitoring
  - Materials for restraint
Restraining the Unarmed Patient

• Plan your approach to the patient.
Restraining The Unarmed Patient

- Assign one rescuer to each limb.
- Keep communicating with the patient.
Restraining The Unarmed Patient

• Once patient is restrained, move patient to a supine position on the stretcher and secure.
Positioning and Restraining Patients For Transport

- Use soft restraints to secure the patient.
Positioning and Restraining Patients for Transport

• Continually reassess and monitor the patient’s airway, breathing, and distal circulation
  • Be alert for signs of positional asphyxia
  • Never hog-tie or use hobble restraints

• Chemical restraint
The Agitated Patient

• Summary
  • Delirium and Dementia are very common causes of altered mental status
    • Dementia is usually slow onset and permanent
    • Delirium generally comes on quickly and is reversible
      • AEIOU-TIPS, SMASHED
  • Excited Delirium is a unique case of altered mental status
    • Combination of psychiatric illness, substance abuse and conflict with law enforcement with a high mortality rate
  • Your safety has to be your #1 priority here
    • Can’t help anyone if you are a casualty yourself
  • Be prepared to help physically or chemically restrain someone
  • NEVER restrain in the prone position
    • Most common cause of death is positional airway compromise
  • Continually reassesses the patient with ED
    • When someone starts to quiet down, that should be your cue!